

Appl. No. 09/940,471

Amdt. dated April 25, 2005

Reply to Office Action of January 13, 2005

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-191. (Cancelled).

192. (Previously Presented) The method of claim 193, wherein the lead system is provided such that it does not reside in the patient's vasculature.

193. (Previously Presented) A method of supplying energy for alleviating a cardiac dysfunction, the method comprising:

- implanting a device having a power source and an energy storage system into a patient;
- providing a lead system having one or more electrodes, the lead system provided such that it is disposed internally to a patient without contacting the patient's heart;
- sensing an abnormality in the patient's cardiac rhythm using electrodes disposed internally to the patient but not contacting the patient's heart;
- coupling the power source to the energy storage system;
- storing energy in the energy storage system; and
- discharging the energy from the energy storage system to the patient, the step of discharging the energy including using at least one electrode disposed in the lead system;

wherein the step of sensing an abnormality further includes determining whether the patient has an abnormally slow heart rate.

194. (Previously Presented) The method of claim 193, wherein the step of sensing an abnormality in the patient's cardiac rhythm makes use only of electrodes disposed outside of the patient's heart and vasculature.

195. (Previously Presented) The method of claim 206, wherein the step of sensing an abnormality further includes determining whether the patient has an abnormally slow heart rate.

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196. (Previously Presented) The method of claim 193, wherein the step of sensing an abnormality further includes determining whether the patient has an abnormally fast heart rate.

197. (Previously Presented) The method of claim 193, wherein the step of sensing an abnormality further includes determining whether the patient is likely experiencing ventricular fibrillation.

198. (Previously Presented) The method of claim 193, wherein the electrodes are part of the lead system.

199. (Cancelled).

200. (Previously Presented) The method of claim 193, wherein the step of implanting a device includes implanting the device between approximately the third rib and the twelfth rib of the patient.

201. (Previously Presented) A method of supplying energy for alleviating a cardiac dysfunction, the method comprising:

implanting a device having a power source and an energy storage system into a patient;

providing a lead system having one or more electrodes for the device, the lead system provided such that it is disposed internally to a patient without contacting the patient's heart;

coupling the power source to the energy storage system;

storing energy in the energy storage system; and

discharging the energy from the energy storage system to the patient, the step of discharging the energy including using at least one electrode disposed in the lead system;

wherein the step of implanting a device includes implanting the device at about the left axillary line.

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202. (Previously Presented) The method of claim 201, wherein the step of providing the lead system includes providing a lead extending medially from the device.

203. (Previously Presented) A method of supplying energy for alleviating a cardiac dysfunction, the method comprising:

- implanting a device having a power source and an energy storage system into a patient;
- providing a lead system having one or more electrodes for the device, the lead system provided such that it is disposed internally to a patient without contacting the patient's heart;
- coupling the power source to the energy storage system;
- storing energy in the energy storage system; and
- discharging the energy from the energy storage system to the patient, the step of discharging the energy including using at least one electrode disposed in the lead system;

wherein the step of implanting a device includes implanting the device approximately level with the cardiac apex.

204. (Previously Presented) A method of supplying energy for alleviating a cardiac dysfunction, the method comprising:

- implanting a device having a power source and an energy storage system into a patient;
- providing a lead system having one or more electrodes for the device, the lead system provided such that it is disposed internally to a patient without contacting the patient's heart;
- coupling the power source to the energy storage system;
- storing energy in the energy storage system; and
- discharging the energy from the energy storage system to the patient, the step of discharging the energy including using at least one electrode disposed in the lead system;

wherein the step of implanting a device includes implanting the device along the inframammary crease.

205. (Previously Presented) A method of supplying energy for alleviating a cardiac dysfunction, the method comprising:

- implanting a device having a power source and an energy storage system into a patient;

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providing a lead system having one or more electrodes for the device, the lead system provided such that it is disposed internally to a patient without contacting the patient's heart;
coupling the power source to the energy storage system;
storing energy in the energy storage system; and
discharging the energy from the energy storage system to the patient, the step of discharging the energy including using at least one electrode disposed in the lead system;
wherein the step of discharging the energy uses a first electrode that is part of the lead system and a second electrode disposed on the device itself, wherein the amount of energy discharged is selected to achieve a pacing function.

206. (Currently Amended) A method of supplying energy for alleviating a cardiac dysfunction, the method comprising:

implanting a device having a power source and an energy storage system into a patient;
providing a lead system having one or more electrodes for the device, the lead system provided such that it is disposed internally to a patient without contacting the patient's heart;
coupling the power source to the energy storage system;
storing energy in the energy storage system; and
discharging the energy from the energy storage system to the patient, the step of discharging the energy including using at least one electrode disposed in the lead system;
wherein the step of discharging the energy uses only a first electrode that is part of the lead system and ~~a second~~ an electrode means for dispensing current to tissue disposed on the device itself, wherein the amount of energy discharged is selected to achieve a defibrillation function.

207. (Cancelled).

208. (Currently Amended) A method of supplying an electrical stimulus to a patient's heart comprising:

providing a lead assembly including a first electrode implanted in a patient, the lead assembly provided such that it does not contact the patient's heart;

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providing a device including a battery and a means for storing energy, the device being coupled to the lead assembly;

providing a second electrode implanted such that it does not contact the patient's heart;

sensing far-field signals using a sensing electrode pair including the first electrode to monitor a portion of the patient's cardiac rhythm;

determining whether the patient's cardiac rhythm requires electrical therapy; and, if so:

supplying energy from the battery to the energy storage means; and

discharging energy stored in the energy storage means to the patient using a stimulus electrode pair including the second electrode;

wherein the second electrode is provided on a housing of the device; and

wherein the step of providing the lead assembly includes extending the lead assembly medially from the device.

209. (Previously Presented) A method of supplying an electrical stimulus to a patient's heart comprising:

providing a lead assembly including a first electrode implanted in a patient, the lead assembly provided such that it does not contact the patient's heart;

providing a device including a battery and a means for storing energy, the device being coupled to the lead assembly;

providing a second electrode implanted such that it does not contact the patient's heart;

sensing far-field signals using a sensing electrode pair including the first electrode to monitor a portion of the patient's cardiac rhythm;

determining whether the patient's cardiac rhythm requires electrical therapy; and, if so:

supplying energy from the battery to the energy storage means; and

discharging energy stored in the energy storage means to the patient using a stimulus electrode pair including the second electrode; wherein:

the lead assembly includes a third electrode disposed such that it does not touch the heart;

the sensing electrode pair includes the first electrode and the second electrode; and

the stimulus electrode pair includes the second electrode and the third electrode.

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210. (Previously Presented) The method of claim 211, wherein the step of implanting a device includes implanting the device between approximately the third rib and the twelfth rib of the patient.

211. (Previously Presented) A method of supplying an electrical stimulus to a patient's heart comprising:

providing a lead assembly including a first electrode implanted in a patient, the lead assembly provided such that it does not contact the patient's heart;

providing a device including a battery and a means for storing energy, the device being coupled to the lead assembly;

providing a second electrode implanted such that it does not contact the patient's heart;

sensing far-field signals using a sensing electrode pair including the first electrode to monitor a portion of the patient's cardiac rhythm;

determining whether the patient's cardiac rhythm requires electrical therapy; and, if so:

supplying energy from the battery to the energy storage means; and

discharging energy stored in the energy storage means to the patient using a stimulus electrode pair including the second electrode;

whercin the step of providing the lead system includes providing a lead extending medially from the device;

wherein the step of implanting a device includes implanting the device at about the left axillary line.

212. (Cancelled).

213. (Previously Presented) The method of claim 211, wherein the step of implanting a device includes implanting the device approximately level with the cardiac apex.

214. (Previously Presented) The method of claim 211, wherein the step of implanting a device includes implanting the device along the inframammary crease.

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215. (Previously Presented) The method of claim 211, wherein the step of providing a lead assembly includes providing the lead assembly outside of the patient's vasculature.

216. (Previously Presented) A method of supplying an electrical stimulus to a patient's heart comprising:

providing a lead assembly including a first electrode implanted in a patient outside of the patient's vasculature;

providing a device including a battery, means for storing energy and a housing having a second electrode thereon, the device being coupled to the lead assembly and placed between approximately the third rib and the twelfth rib of the patient at approximately the left axillary line along approximately the inframammary crease;

sensing far-field signals using a sensing electrode pair including the first electrode to monitor a portion of the patient's cardiac rhythm;

determining whether the patient's cardiac rhythm requires electrical therapy; and, if so:

supplying energy from the battery to the energy storage means; and

discharging energy stored in the energy storage means to the patient using a stimulus electrode pair including the second electrode.

217. (Previously Presented) The method of claim 216, wherein:

the lead assembly includes a third electrode disposed outside of the patient's vasculature;

the sensing electrode pair includes the first electrode and the second electrode; and

the stimulus electrode pair includes the second electrode and the third electrode.